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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/728,435	12/01/2000	Klaus Hartig	44046.203.143.2	8579

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EXAMINER

PIZIALI, ANDREW T

ART UNIT

PAPER NUMBER

1775

DATE MAILED: 10/23/2002

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/728,435

Applicant(s)

HARTIG ET AL.

Examiner

Andrew T Piziali

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-- Th MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) 40-45 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) ✓
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) ✓
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, claims 1-39 in Paper No. 6 is acknowledged. The traversal is on the grounds that no serious burden on the examiner exists. This is not found persuasive because a search of Group II would require the examiner to search in class 427 in addition to class 428, as indicated in the Office Action mailed 6/18/02. Therefore, the examination of Group II, in addition to the examination of Group I, would be a serious burden on the examiner. Rejoinder will be considered upon indication of allowable subject matter pursuant to MPEP 821.04.

The requirement is still deemed proper and is therefore made FINAL.

Drawings

✓ 2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign mentioned in the description: On page 6, line 11, reference is made to reference character 14, but reference character 14 does not appear in the drawing. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

✓ 3. The disclosure is objected to because of the following informalities: On page 1, line 11, the term "with•temperable" is present. On page 3, line 6, the word "unsalable" is present. Appropriate correction is required.

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- ✓ 4. On page 8, lines 5-7 the applicants incorporate a foreign reference. The incorporation of essential material in the specification by reference to a foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the amendatory material consists of the same material incorporated by reference in the referencing application. See *In re Hawkins*, 486 F.2d 569, 179 USPQ 157 (CCPA 1973); *In re Hawkins*, 486 F.2d 579, 179 USPQ 163 (CCPA 1973); and *In re Hawkins*, 486 F.2d 577, 179 USPQ 167 (CCPA 1973).

Claim Objections

- ✓ 5. Claim 3 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Claim 1 already establishes that the at least three intermediate layers comprise dielectric layers. Applicant is required to cancel the claim, or amend the claim to place the claim in proper dependent form, or rewrite the claim in independent form.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

- ✓ 7. Claims 1-39 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. A substrate appears to be critical or essential to the practice of the

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invention. Unless there is some evidence that the coating can stand alone, the claims are incomplete in the absence of a substrate.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- ✓ 9. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Deletion of "30" from line 1 would remove this rejection.
- ✓ 10. Claims 11 and 22 recite the limitation "the first silver layer" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.
- ✓ 11. Claims 12-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically regarding claim 12, substitution of "110%" for "1100%" would remove this rejection.
- ✓ 12. Claims 1-39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically regarding claims 1, 12, 23 and 34, the applicants set forth specific characteristics (haze-resistant and temperable), but fail to set forth specific compositions which would meet such characteristics. Claims merely setting forth physical characteristics desired in article, and not setting forth specific compositions which would meet such characteristics, are invalid as vague, indefinite, and functional since they cover any conceivable combination of ingredients either presently existing or which might be discovered in future and which would impart desired characteristics. Applicants are required to include specific compositions for the

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inner dielectric, the first infrared reflective layer, the intermediate dielectric stack, the second infrared reflective layer and the outer dielectric layer which would meet the claimed characteristics.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

14. Claims 1-15, 18-26, 29-34 and 36-39 are rejected under 35 U.S.C. 102(e) as being anticipated by USPN 6,090,481 to Depauw et al. (hereinafter referred to as Depauw).

Regarding claims 1-15, 18-26, 29-34 and 36-39, Depauw discloses a coating carried by a substrate having a surface comprising from the substrate surface outwardly an inner dielectric layer, a first infrared reflective layer, an intermediate dielectric layer, a second infrared reflective layer, and an outer dielectric layer (column 3, lines 26-39). Depauw discloses that each dielectric layer can be a composite layer formed of successive subsidiary layers of different compositions from each other (column 5, lines 31-40 and Table A). Depauw discloses that the dielectric materials include tin oxide and silicon nitride (column 5, lines 23-30). Depauw discloses that the physical thickness of each layer of a composite layer may be no more than about 225Å each and each optical thickness may be no more than 450Å (Table A). Therefore,

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Depauw discloses a coating carried by a substrate comprising an intermediate dielectric stack comprising zinc oxide/silicon nitride/zinc oxide/silicon nitride/zinc oxide.

Regarding claims 6, 14 and 25, Depauw discloses that the layers are preferably applied by sputtering (column 5, lines 60-61). The applicants disclose in the specification that zinc oxide is a polycrystalline material when applied in thin films via sputtering (see specification page 12, lines 17-18). The applicants also disclose that thin layers of silicon nitride can be thought of as substantially amorphous even after tempering (see specification page 12, lines 22-23). Therefore, it appears that the zinc oxide layers of Depauw are polycrystalline and the silicon nitride layers of Depauw are amorphous.

Regarding claims 11, 22 and 33, Depauw discloses that a sacrificial layer may be disposed between the first infrared reflective silver layer and the intermediate dielectric layer (column 5, lines 11-12 and lines 46-54).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 16-17, 27-28 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,090,481 to Depauw.

Regarding claims 16-17 and 27-28, Depauw does not mention a specific embodiment wherein each of the layers of the first dielectric have an optical thickness greater than the optical thickness of any of the layers of the second dielectric, but it would have been obvious to one

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having ordinary skill in the art at the time the invention was made to adjust the thicknesses of the layers, because it is understood by one of ordinary skill in the art that the layer thicknesses determine properties such as transmittance, emissivity, and color and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claims 17, 28 and 35, Depauw does not mention a specific embodiment wherein each of the first dielectric layers has a physical thickness between about 160A and about 225A and each of the second dielectric layers has a physical thickness of between 100A and about 150A, but it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the thicknesses of the layers, because it is understood by one of ordinary skill in the art that the layer thicknesses determine properties such as transmittance, emissivity, and color and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Conclusion

17. The following patents are cited to further show the state of the art with respect to low emissivity coatings:

USPN 4,965,121 to Young et al.

USPN 5,834,103 to Bond et al.

USPN 6,042,934 to Guiselin et al.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T Piziali whose telephone number is (703) 306-0145. The examiner can normally be reached on Monday-Friday (8:00-4:30).

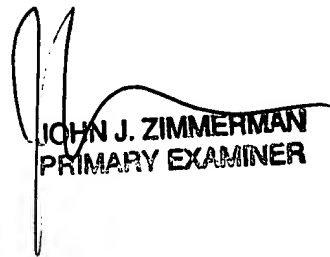
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (703) 308-3822. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-5665.



atp
October 18, 2002

Andrew T Piziali
Examiner
Art Unit 1775



JOHN J. ZIMMERMAN
PRIMARY EXAMINER